EXHIBIT "EHG-RW-6"

Donovan/Riolo Affidavit

BEFORE THE STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

Proceeding on Motion of the Commission to Examine New York Telephone Company's Rates for Unbundled Network Elements	**Case 98-C-1357**

JOINT AFFIDAVIT OF JOHN C. DONOVAN & JOSEPH P. RIOLO IN SUPPORT OF THE JOINT COMMENTS OF COVAD COMMUNICATIONS COMPANY AND RHYTHMS LINKS INC. CONCERNING THE PROPOSED RATES OF BELL ATLANTIC – NEW YORK FOR ADSL-QUALIFIED, HDSL-QUALIFIED, AND DIGITAL-DESIGNED LINKS

JOHN C. DONOVAN and JOSEPH P. RIOLO, being first duly sworn on oath, depose and say:

1. This affidavit is submitted jointly by both Affiants. Each of us has read the affidavit and support it in its entirety. Both of us have extensive experience in telecommunications and have worked together in preparing this joint affidavit. Mr. Donovan has been retained by Covad Communications Company ("Covad"), and Mr. Riolo has been retained by Rhythms Links Inc. ("Rhythms").

Qualifications

A. John C. Donovan

2. My name is John C. Donovan. I am the President of Telecom Visions, Inc., located at 11 Osborne Road, Garden City, New York 11530. Currently, I am providing telecommunications consulting services to a number of firms concerning telecommunications infrastructure design, construction and the costing aspects of the local loop. I have also provided services to several manufacturers of telecommunications

equipment, investment companies, insurance claims companies, patent attorneys, and others.

3. I received a Bachelor of Science degree in Engineering from the United States Military Academy at West Point, NY, and a MBA degree from Purdue University. I have also attended the Penn State Executive Development Program. I have 30 years of telecommunications experience. My last employment before forming Telecom Visions, Inc. was with the NYNEX Corporation, now known as Bell Atlantic-North. I retired from NYNEX after 24 years of experience in a variety of line and staff assignments, primarily in outside plant engineering and construction. That experience included everything from splicing fiber and copper cables, to heading an organization responsible for the procurement, warehousing, and distribution of approximately $1 million per day in telecommunications equipment. I have had detailed hands-on experience in rural, suburban, and high density urban environments, consisting of assignments in Upstate New York for the northeastern portion of the state including the Adirondack Mountain area, in suburban Long Island, and in Midtown Manhattan. I spent several years on the corporate staff of NYNEX responsible for the development of all Methods and Procedures for Engineering and Construction within that company. To summarize, I have planned outside plant, I have designed outside plant, I have purchased telecommunications materials and contract labor, I have personally engineered and constructed outside plant, and I have designed methods for those who do such functions. I have also performed other functions, or have supervised those who do, in installing, connecting, repairing, and maintaining the various parts of the telecommunications network.

4. I have also taught undergraduate students as an Adjunct Professor of Telecommunications at New York City Technical College, and have attended numerous courses in telecommunications technologies, methods and procedures. For the past three and one half years, I have submitted affidavits, written testimony, and appeared as an expert telecommunications witness in proceedings before state regulatory commissions in Alabama, Arizona, Colorado, Georgia, Louisiana, Maine, Maryland, Massachusetts, Nevada, New Jersey, Oklahoma, Pennsylvania, Texas, Washington, and before the Federal Communications Commission ("FCC"). Attachment JCD-1 to this Affidavit provides further detail concerning my qualifications and experience.

B. Joseph P. Riolo

5. My name is Joseph P. Riolo. My business address is 102 Roosevelt Drive, East Norwich, New York 11732.

6. I have been an independent telecommunications consultant since 1992. As a consultant I have submitted expert testimony on matters related to telephone plant engineering in California, Delaware, Hawaii, Iowa, Maine, Maryland, New Jersey, Pennsylvania, Virginia, West Virginia, Wisconsin and the District of Columbia.

7. I have personally engineered all manners of outside plant including underground, aerial and buried plant in urban, suburban and rural environments. I have engineered copper and fiber plant as well as provisioned analog and digital services. I have participated in the design, development and implementation of methods and procedures relative to engineering planning, maintenance and construction. During the course of my career, I have had opportunities to place cable (both copper and fiber), splice cable (both copper and fiber), install DLC, test outside plant, and perform various

installation and maintenance functions. I have prepared and awarded contracts for the procurement of materials. I have audited and performed operational reviews relative to matters of engineering, construction, assignment, and repair strategy in each company throughout the original 22 company Bell System.

8. I have directed operations responsible for an annual construction budget of $100 million at New York Telephone Company. My responsibilities included but were not limited to engineering, construction, maintenance, assignment and customer services.

9. This experience was obtained while holding the following positions related to the provision of local telephone outside plant facilities:

- Between 1987 and 1992, I was the NYNEX Engineering Director- Long Island. In that position, I was responsible for budgeting, planning, engineering, provisioning, assignment and maintenance of telecommunications services for all customers on Long Island, N.Y.
- Between 1985 and 1987, I was NYNEX District Manager- Midtown Manhattan. I was responsible for budgeting, planning, engineering, provisioning, assignment and maintenance of telecommunications services for all customers in Midtown Manhattan.
- Between 1980 and 1985, I was NYNEX District Manager- Engineering Methods. In that capacity, I was responsible for the design, development, implementation and review of all outside plant methods and procedures for New York Telephone Company. Additionally, I was responsible for the procurement of all outside plant cable and apparatus for the New York Telephone Company.

- Between 1978 and 1980, I was an AT&T District Manager, responsible for the design, development and documentation of various Bell System plans, and for audits and operational reviews of selected operating companies in matters of Outside Plant engineering, construction, assignment and repair strategy. I also served as the Project Team Leader at Bell Telephone Laboratories for the design and development of functional specifications for mechanized repair strategy systems.
- Between 1976 and 1978, I was District Manager - Outside Plant Analysis Center for New York Telephone Company. I was responsible for the analysis of all outside plant maintenance reports and the design, development and implementation of related mechanized reporting, analytical and dispatching systems. I was also responsible for the procurement of all outside plant cable and apparatus for the New York Telephone Company.

10. I hold a B.S. in Electrical Engineering from City College of New York, and have taken a variety of specialized courses in telecommunications since college.

Purpose

11. The purpose of this Affidavit is to provide factual support for the Joint Comments of Covad Communications Company ("Covad") and Rhythms Links Inc. ("Rhythms") concerning the amendments that New York Telephone Company, d/b/a Bell Atlantic – New York ("BA-NY"), filed on August 30, 1999, to its Tariff P.S.C. No. 916. Those amendments introduced rates and regulations for four types of unbundled loops capable of carrying Digital Subscriber Line ("DSL") services: namely, ADSL-Qualified Links, two-wire and four-wire HDSL-Qualified Links and Digital-Designed

Links. At the request of Covad and Rhythms, we have reviewed the tariff amendments; the September 13, 1999, Joint Affidavit of Carmelo R. Curbelo, Amy Stern and James F. Schafer ("Joint Affidavit") that provided BA-NY's supporting rationale for its proposed tariff changes; and the cost materials attached as Exhibit A to that Joint Affidavit. Our Affidavit identifies the technical issues associated with the proposed prices described in the tariff amendments and the Joint Affidavit. In particular, we fully support the opinions and comments of witness Terry L. Murray in these proceedings, and intend for our comments to provide additional assistance to this Commission regarding technology, and to provide information regarding the reasonableness of BA-NY's unsubstantiated estimates of times required to perform work functions addressed in their September 13, 1999 Joint Affidavit.

12. Our affidavit explains the technical aspects of the network based upon generally accepted telecommunications engineering principles practiced by those well versed in the art of telecommunications. We will discuss how the network has been built over many years, how it should have been built over those time periods, and what work functions are normally involved in conditioning loops when necessary to correct substandard conditions or to enhance loop functionality. We will also discuss certain aspects of Bell Atlantic's Draft 9 of Technical Reference No. TR72575, Issue 2.

Summary

13. It is our position that none of Bell Atlantic's non-recurring charges for loop conditioning is justified or reasonable because they contradict forward-looking, most efficient network design. A correctly designed and engineered network would not require

the removal of analog loop conditioning such as load coils and excess bridged taps, nor copper pair swaps.

14. In addition, it appears that Bell Atlantic is attempting to get CLECs to subsidize the modernization of its outside plant that has existed long beyond its normal service life or that was not designed according to evolving prescription engineering design guidelines. At the same time, Bell Atlantic has recovered -- and continues to recover -- rates from New York ratepayers that were supposed to be used to modernize its network.

15. Further, CLECs should be allowed access to existing databases such as LFACS and TIRKS, on a read-only basis, to be able to determine outside plant characteristics prior to ordering a loop.

16. Notwithstanding our position that Bell Atlantic's proposed rates are not justified, it is clear from our review of Bell Atlantic's tariff and affidavit that Bell Atlantic's proposed charges are unreasonable at their face values. We do not have sufficient information to do a detailed analysis of the basis of Bell Atlantic's rates at this time. However, we will highlight some specific criticisms in our affidavit.

A Brief History of Outside Plant Design

17. The term "outside plant" refers to all physical telecommunications facilities located outside of central office buildings, normally consisting of poles, conduit, fiber optic cable, copper cable, and ancillary equipment. Issues surrounding outside plant form the basis for BA-NY's amendment to the 916 Tariff.

18. Engineering design must take into account transmission characteristics of copper cable. Customers are lumped into geographical groupings, and then a fail-safe

transmission design is created for all customers in that grouping, using the worst case loop. This simplifies distribution network design[1]. Such a grouping of customers is normally referred to as a *Distribution Area*. All cables within a Distribution Area should have a uniform cable gauge makeup and loading[2] characteristics. This traditional simplified engineering planning and design method, also known as "prescription design", has been used for decades to preclude the engineer from having to do a manual loop qualification for each individual loop within the Distribution Area.

19. Over many years, several distribution network designs have evolved. The major distribution network designs that evolved are Multiple Plant, Dedicated Plant, Interfaced Plant, the Serving Area Concept ("SAC Design"), and the Carrier Serving Area Concept ("CSA design"). Network design has evolved such that CLECs can provide either advanced or analog services over the majority of existing outside plant.

20. Multiple Plant (pre-1960's): Multiple Plant design dates back to the days of party line service. While there are still some customer lines on party line service, especially in upstate New York, the industry has long recognized that party line service should have been eliminated years ago in order to provide equivalent service levels to all end users of POTS common carrier service. This very old design created many cases of "bridged tap."

21. Bridged tap is defined as follows:

> Bridged tap [occurs when] an extra pair of wires [is] connected in shunt [parallel] to a main cable pair. The extra pair is normally open circuited but may be used at a future time to connect the main pair to a new customer. Short bridged taps do not effect voice

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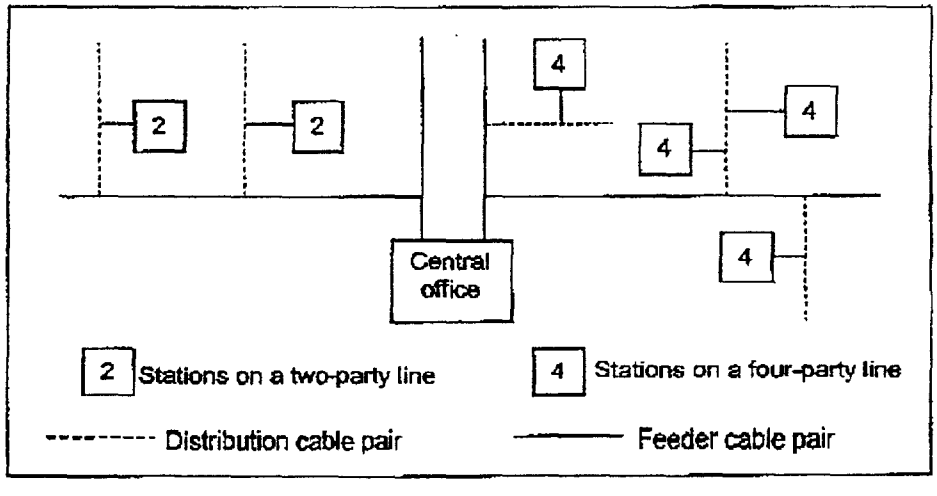
1 See Bellcore, *Telecommunications Transmission Engineering*, 1990, p. 91.

2 Load coils are inductors placed on copper cable wires to counteract the effects of increasing capacitance as pair lengths become longer.

frequency signals but can be extremely detrimental to high frequency digital signals.[3]

22. Bridged tap was initially used so that telephone companies could provide facilities less expensively in a market where not all customers would want telephone service. Since an exact customer requesting dial tone, among several, could not be predicted, use of bridged tap allowed the company to draw dial tone on one pair of wires at several locations. That outdated environment produced a design concept called "multiple plant". Multiple plant is defined as follows:

> Multiple plant design involves splicing two or more distribution pairs to a single feeder pair, as illustrated [below]. That is, feeder and distribution plant are combined with no interface between them. This procedure provides flexibility to accommodate future assignments by providing multiple appearances of the same loop pair at several distribution points. In times when multiparty service was common, it accommodated field-bridging of party-line stations, saving feeder pairs at the cost of added field work for rearrangements. However, adding new feeder pairs forced line and station transfers to relieve the distribution cables. Because changing existing plant or adding new facilities is labor intensive and because party-line service continues to shrink, multipled plant design has been largely replaced by other designs.[4]



[3] Gilbert Held, *Dictionary of Communications Technology*, John Wiley & Sons 1995, p. 56.

[4] Bellcore, *Telecommunications Transmission Engineering*, 1990, p. 92.

23. Dedicated Plant (late 1960's): Dedicated plant was a short-lived attempt to provide a permanently assigned cable pair from the central office main distributing frame ("MDF") to each customer's Network Interface, without a Feeder Distribution Interface. This resulted in little network flexibility, and created maintenance problems. "... [D]edicated plant has been superseded by interfaced plant."[5]

24. Interfaced Plant (1960 - 1972): Interfaced plant design guidelines mandated the use of a Feeder Distribution Interface ("FDI"),

> a manual cross-connection and demarcation point between feeder and distribution plant.
>
> Compared to multipled and dedicated plant, interfaced plant provides greater flexibility in the network. The serving area concept, discussed below, uses the interfaced plant design.[6]

25. Serving Area Concept (1972 - 1980+): The Serving Area Concept ("SAC") design was introduced in the early 1970's as a prescription simplified engineering planning and design method, and was the first major attempt to modernize the network to care for growing and ubiquitous service to an ever shifting customer base. Many concepts carried over into the Carrier Serving Area ("CSA") design guidelines that have been used since approximately 1980. The following are important aspects of SAC design that form the basis for the modern day concept of outside plant planning and design that have been in place for over 27 years:

> Portions of the geographic area of a wire center are divided into discrete serving areas...
>
> The outside plant within the serving area is the distribution network. It is connected to the feeder network at a single

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5 Bellcore, *Telecommunications Transmission Engineering*, 1990, p. 92.

6 Bellcore, *Telecommunications Transmission Engineering*, 1990, pp. 92-93.

> interconnection point, the serving area interface [or feeder distribution interface].
>
> ... it simplifies and reduces engineering and plant records necessary to design, construct, administer, and maintain outside plant...
>
> **It aids transmission by minimizing bridged taps**, a distinct advantage in providing services of bandwidth greater than voice. [emphasis added][7]

The SAC concept also stated that there should be no multipled copper feeder cable (i.e., no bridged tap at all), or as a less desirable fallback position, no more than 15% of the feeder pairs should be multipled with another Serving Area.

26. Carrier Serving Area (1980+): The next guideline for modernizing the network was the introduction of the "Carrier Serving Area Concept" to care for customers' demand for increasing transmission bandwidth. This new CSA prescription simplified engineering planning and design guideline initially used a simple 900 ohm rule that could be equated to loop lengths depending on wire gauge. The following Bellcore description indicates precisely the loops desired by Bell Atlantic and CLECs in provisioning xDSL loops of any kind currently in the marketplace:

> The maximum allowable bridged-tap is 2.5 kft, with no single bridged-tap longer than 2.0 kft. All CSA loops must be unloaded and should not consist of more than two gauges of cable.[8]

27. Summary: What we have is a history clearly stating that states that all loops since 1980 should have been designed to the CSA concept that would support sought-after digital services. All loops since 1972 should have at least been designed under the Serving Area Concept, in which all distribution cable, within an entire Distribution Area, has the same transmission characteristics (all loaded or all non-loaded), all of the same

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7 Bellcore, *Telecommunications Transmission Engineering*, 1990, pp. 92-93.

8 Bellcore, *Bellcore Notes on the Networks - Issue 3*, December 1997, p. 12-5.

copper gauge cable, and with no bridged tap, or minimal bridged tap. Therefore, correctly designed outside plant for the past 27 years should present little problem to CLECs applying for xDSL service loops. Loops older than 27 years are far beyond their useful service lives and depreciation lives.

28. It should be noted that xDSL technologies were created under the vision that most existing copper circuits would support much higher bandwidth using sophisticated electronics. The legacy of that position goes back to the promulgation of CSA guidelines in 1980. Thus, most loops in Bell Atlantic's outside plant inventory can support DSL and voice service because network design has evolved such that CLECs can provide either advanced or analog services over the majority of existing outside plant. CLECs just want a normal, well-designed copper loop. CLECs are not requesting a host of "unusual loops" or "unique loops" that justify the imposition by BA-NY of "unusual" and "unique" special charges. In fact, the most recent Bellcore loop study from 1990 indicates,

> More than two-thirds (67.3%) of the loops are compatible with CSA guidelines. The main reason for incompatibility of the balance is excessive bridged-tap.[9]
>
> The ... average working length [for the sampled pairs is] 10,787 ft. ... Sampled residence pairs have an average ... working length of 11,723 ft. ... Business pairs have an average ... working length of 8,816 ft.[10]

29. Although line-sharing is not a subject of this tariff investigation, it is worthy to note that noticeably absent from Bell Atlantic's tariff is any provision that would allow CLECs to line-share their DSL service with existing analog service. . In fact, that is what Bell Atlantic does for itself. This process of line-sharing is an efficient means to utilize Bell Atlantic's existing outside plant. In addition to its inherent efficiency as a means to

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[9] Bellcore, *Bellcore Notes on the Networks, Issue 3*, December 1997, p. 12-18.

[10] Bellcore, *Bellcore Notes on the Networks, Issue 3*, December 1997, p. 12-8, p. 12-13 & p. 12-15.

deploy DSL services, line-sharing is also an effective way to deal with the lack of facilities. CLECs like Covad and Rhythms have been experiencing a significant number of loop order rejections due to "no facilities" conditions. Line sharing would allow CLECs to use an existing loop and eliminate the need to order a new loop to provide DSL service. BA-NY provides both voice and ADSL service over the same line and should allow CLECs to do the same.

Pair Changes

30. BA-NY has a history of discrimination in releasing spare copper pairs to its competitors. CLECs want to be able to do as BA-NY is able to do at a moment's notice – determine whether copper or facilities are needed to provide service to its customers. For example, as the incumbent provider, BA-NY has the ability to unilaterally decide to keep certain customers on copper if they want to provide their DSL product to those customers. CLECs also want to make a decision on how to use BA-NY's outside plant to meet their own customers' needs.

31. Pair swap charges are not justified, as witness Terry L. Murray points out in her testimony. Any cross connection or termination of any working line has already been funded in recurring charges. Every loop must be connected throughout, or circuit current will not flow in the customer loop. Therefore, by definition, a new pair connection on every line has already been charged to the CLEC and amortized over the service life of the plant.

32. It is worthwhile to note that one of the reasons that CLECs need pair changes in the first place is to be able to provide more than just IDSL over loops fed by Digital Loop Carrier (DLC). This is because BA-NY's network, as it is designed today, deploys

equipment in the central office and at remote DLC terminals that is only capable of ISDN speeds over fiber. Vendors are even now creating equipment (line cards, DSLAMs) that accommodate more than just low speed technologies over fiber facilities. Bell Atlantic will not allow CLECs to have access to its remote terminals either through collocation, through having BA deploy multi-hosting DSLAMs that are capable of supporting multiple technologies and multiple carriers, or through deploying the line cards of CLEC choice.. Access to Bell Atlantic's remote terminals would allow CLECs to provide multiple flavors of DSL over loops fed by DLC. This would ultimately remove the need to get pair changes in at least some instances.

33. That being said, where pair rearrangement is required, Bell Atlantic has provided no substantiation for the extensive labor hours they claim are necessary for this function. It is important for this Commission to be able to test Bell Atlantic's time estimates for reasonableness. What involves moving a couple of wires inches should take minutes; Bell Atlantic surmises that it takes hours.

34. A simple diagram illustrates the most complex task that could occur – the move of a drop wire termination from one pair of binding posts to another. The illustration is also apropos of changing a cross connection at the FDI or at the MDF in the central office.

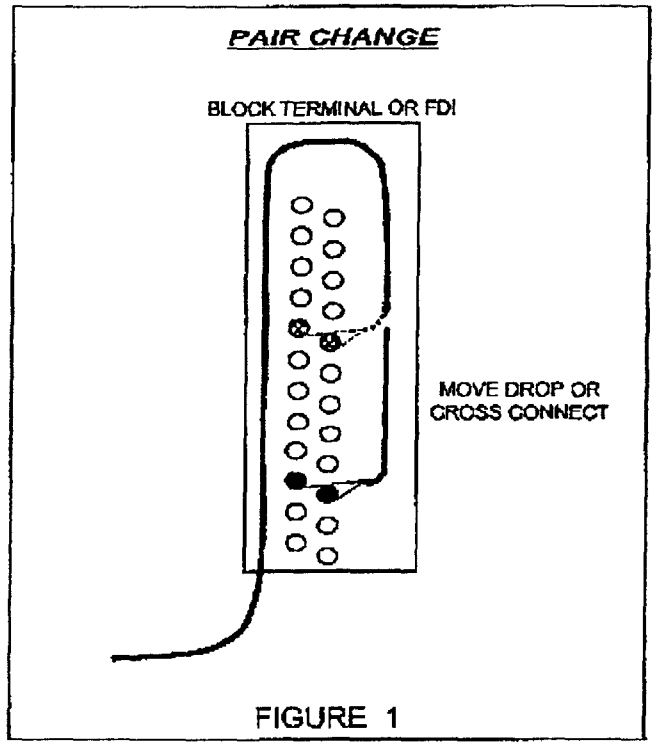

FIGURE 1

This type of connection labor has already been accounted for within the costs of any working line. However, should this Commission grant the ability for Bell Atlantic to charge once again under the category of a "pair change", this work should take a small amount of time for the technician to (1) read the order, (2) locate the work area, (3) identify the "from" and "to" terminations, (4) disconnect two wires from the existing termination, (5) trim them, and (6) reattach them to the new termination. It should not require ½ hour of the Central Office Technician, who provides no added value to the process (per BA-NY: "[the Central Office Technician] Tests and monitors cross-connect process, both testing for a spare pair and testing the customer's circuit both before and

after the swap."[11]). The testing should be done by the Field Technician utilizing his or her Craft Access Terminal ("CAT")[12] to access the MLT (Mechanized Line Testing] system. BA-NY claims that test time is 30 seconds (BA-NY Curbelo/Stern/Schafer Affidavit at 19), but asks for ½ hour in costs. The Frame Attendant does not need ½ hour to move a MDF termination a few inches, or even a few feet. The Field Service Technician certainly does not need 2½ hours to travel to a site, move a connection a few short inches, and perform a 30 second test. Lastly, the General Clerk (for ½ hour) is not even necessary. For ten years Bell Atlantic technicians have been able to change pairs in LFACS, without the intervention of a General Clerk, through use of their Craft Access Terminal. Based on our experience of actually doing such work with our own hands, Bell Atlantic's proposed labor content of 4 hours to move a simple connection is totally unreasonable.

35. In our experience, having performed and/or managed and supervised exactly these kinds of activities, almost all of the work is in the "get ready" or setup time. Actually moving the wire is minuscule, measured in seconds. It is unreasonable for Bell Atlantic to assume that for the 20 percent of the time that a double change is required, it will take 1 hour of a Central Office Technician's time, 5 hours of a Field Service Technician's time, 1 hour of a Frame Attendant's time, and ½ hour of a General Clerk's time to do a 4-wire rather than a 2-wire change, for a total of 7½ hours to do a simple 2-step pair change.

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11 BA-NY Curbelo/Stern/Schafer Affidavit at 13.

12 A "Craft Access Terminal", or "CAT" is a small handheld device that, in its simplest form, is a small dial-up computer terminal that accesses BA-NY's databases. We have had personal experience in using such CATs, which have been in use at BA-NY for over 10 years. More sophisticated CATs are now in use at BA-NY that include computer chip technologies, similar to a PC, that can perform terminal emulation, sophisticated circuit testing capabilities, and job reporting functions. A technician clips onto a dialtone line, dials an 800 number, and can perform

36. Recommendation: We recommend that this Commission recognize that the labor associated with terminating and cross connecting a line has already been accounted for in recurring charges and any further charge for these activities through non-recurring charges would constitute double recovery by Bell Atlantic.

37. That being said, if the Commission determines that it is appropriate to permit a Pair Swap Charge,[13] it should base that charge on a reasonable cost for simple pair changes, not Bell Atlantic's inflated cost. The following activities for which Bell Atlantic seeks recovery appear to be unreasonable on their face:

(1) Since all Field Service Technicians have been equipped with Craft Access Terminals (a cost included in New York Telephone's rate base), the Central Office Technician and General Clerk should be deemed unnecessary costs.

(2) Since this is programmed work, there should be no need for travel time for a Frame Attendant. Instead, the cost should reflect a reasonably short amount of time for the Frame Attendant to read the service order, locate the appropriate position on the frame, and move the MDF cross connection.

(3) The Field Service Technician should be granted a reasonable amount of time to quickly draw down the order on his Craft Access Terminal, locate the customer's address, travel to the Feeder Distribution Interface, move the cross connection, and perform a MLT test. This work should be efficiently loaded as programmed work to minimize travel time throughout the day. In

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data base dips and trigger Operations Support Systems functions, such as MLT testing.

[13] Ms. Murray's Affidavit explains that the Pair Swap Charge should be rejected in its entirety because of the potential for double-counting with BA-NY's recurring loop cost study and the contradictions between the network assumptions underlying the recurring costs and the Pair Swap Charge.

addition, any travel time should be fairly allocated among multiple orders that a Field Service Technician may service in a particular day. Thus, an allocation of the total travel time would be appropriate.

38. Total time should be a small fraction of Bell Atlantic's claim. Bell Atlantic has yet to produce work papers, calculations, or time and motion studies to us for these functions. We will be in a better position to comment should Bell Atlantic provide this evidence, and an audit trail leading to their findings, for our analysis and comment.

Bridged Tap Removal

39. Witness Terry L. Murray is absolutely correct that there is no reasonable relationship between the costs Bell Atlantic incurs in a properly designed network and the price Bell Atlantic attempts to extract from CLECs attempting to obtain access to unbundled loops. We agree with Ms. Murray that Bell Atlantic should remove any excessive bridged tap at their own expense, because it should have been engineered out of the network over the past 27 years; in fact, New York ratepayers have paid, over time, to modernize Bell Atlantic's network to remove these excess bridged taps. In addition, it should be noted that Bell Atlantic's All-Fiber-Feeder Design approved by this Commission included no investments involving bridged tap of any kind. We believe that this is additional justification supporting a position that BA-NY should be required to remove all bridged tap at its own expense.

40. However, despite the fact that New York ratepayers have already paid for a network that is free of bridged taps, if this Commission elects to grant Bell Atlantic the ability to charge CLECs for bridged tap removals, several things need to be considered.

It is important for this Commission to weigh the reasonableness of claims made by BA-NY as to the labor times required to perform the bridged tap removal function.

41. Bridged tap typically occurs in two forms. The first example is where a cable pair reaches a branch splice, and then is extended in at least two directions. Similar to extension lines in a home, a telephone can be plugged into the pair at any of its multiple appearances. This is a cheap way of designing outside plant, and has been out of vogue for several decades, as explained earlier in this affidavit. The second example is where a block terminal is spliced into a distribution cable, and the pairs in the cable continue beyond to serve a few other terminals more distant from the central office. This is technically known as "end tap", and normally occurs where a distribution branch cable extends from a distribution backbone cable, but not for a great distance, and in any case should be less than 2,500 feet.

42. Should this Commission grant Bell Atlantic the ability to charge CLECs to correct the bridged tap condition, the only charge that should be allowed is the removal of "end tap" at the serving terminal. Excessive intermediate bridge tap is improper design and should be removed at Bell Atlantic's expense.

43. Whether the bridged tap[14] occurs in a cable splice or in a terminal splice, the efforts required to eliminate the condition are very similar. The location of the bridge splice must be determined, and should be easily accomplished using accurate continuing property records, which BA-NY is required to keep by law. Otherwise known as engineering records or plats, the continuing property record should clearly show the cable layouts. This information should actually have been captured during the "Loop

[14] There is no appreciable difference in work activities whether the function is called bridge tap or end tap, and the term "bridge tap" will be used to indicate either.

Qualification" or "Engineering Query" phase, and not double counted here. Because cutting away bridged tap is such an easy job for the technician, an Engineering Work Order can be a simple Memo Order. The technician needs to read the engineering order, locate the splice, identify the bridged pairs, and cut away the offending bridged cable pairs with splicing shears (scissors). The simplest condition is when a buried splice is located in a pedestal, such as the 6" x 6" green pedestal that is frequently seen sticking out of the ground in neighborhoods, in front of houses where buried distribution is used. The following diagram illustrates the work involved in cutting and clearing bridged tap from a circuit.

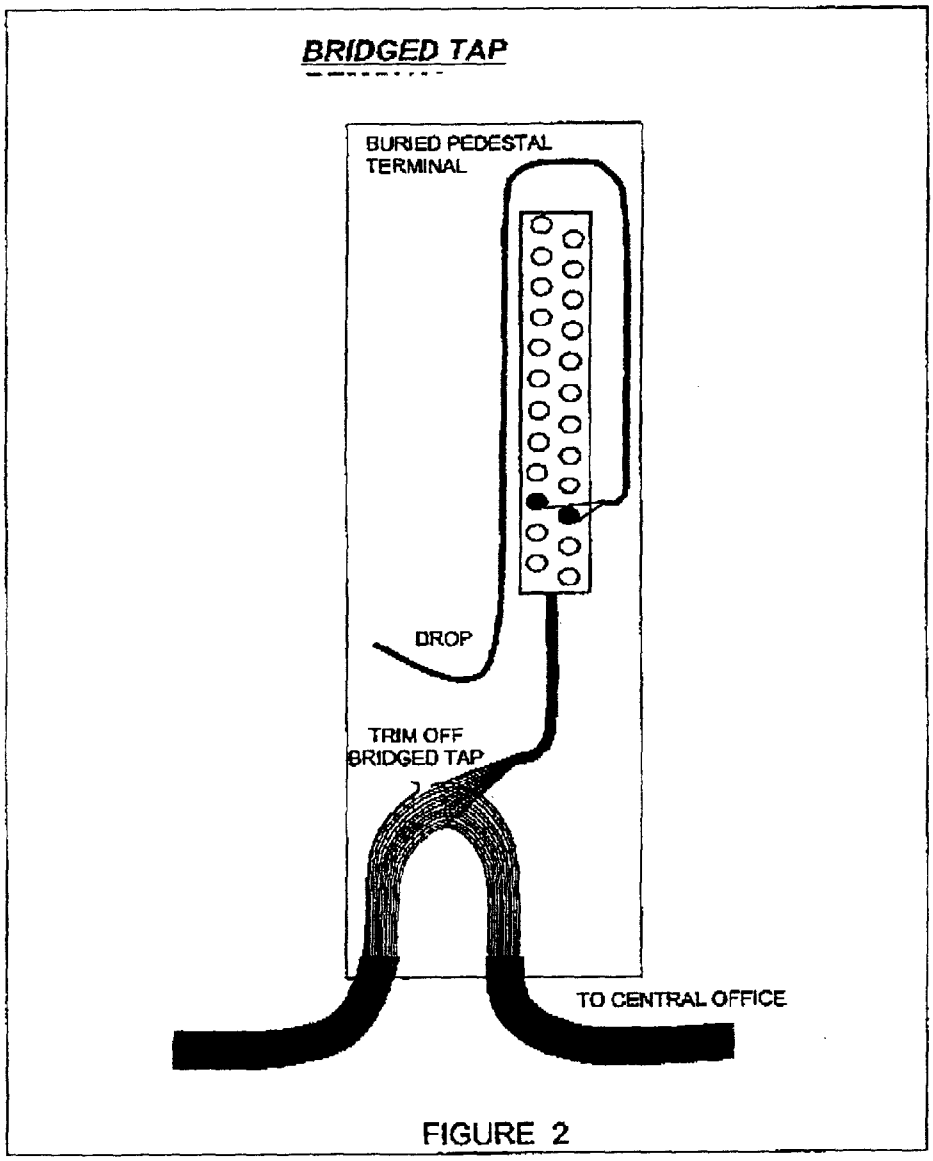

FIGURE 2

44. Whereas Figure 2 shows the removal of "end section", the work is the same to remove cable bridged tap. If the bridged tap or end section occurs in an aerial or underground splice case, then additional work is required to open and close the splice case, which takes a bit longer than simply lifting the cover from a buried pedestal.

45. An additional non-standard source of potential bridged tap might be caused by having extensive numbers of drop wires attached at intermediate terminals where service has been disconnected. It is incumbent on Bell Atlantic to remove such conditions as part of their normal costs of service discontinuance, and a CLEC should not be charged for bridged tap removal of that or similar natures.

46. The costs by Bell Atlantic are much higher for underground cable, since two technicians are required for underground work[15], rather than one technician for buried and aerial work. Bell Atlantic improperly skews costs to 69% underground, with no justification or substantiation. In fact, if CLECs are charged for bridged tap removal, it should only be at an end tap that is located in the serving terminal splice point. A serving terminal splice point rarely, if ever, occurs in an underground manhole. Therefore, the percent underground should be zero.

Load Coil Removal

47. Definition: Long loops with copper feeder require load coils to achieve acceptable transmission standards for voice-grade services. Those load coils impede the transmission of services such as ISDN and DSL and therefore must be removed from copper-based loops that are used to provide such advanced services. Removal of load coils causes a non-recurring cost that the carrier would not incur if it had a network with 100% fiber feeder. For this reason, we recommend that the Commission not allow Bell Atlantic to charge for load coil removal.

48. The FCC's Position: Contrary to BA-NY's assertion, the assumption of a network in which load coils (and bridged taps) must be removed from certain loops to

[15] BA-NY work practices call for two technicians in underground work, so that one technician can stay above the manhole at all times.

make those loops DSL-capable is fundamentally incompatible with the least-cost, most efficient technology assumptions of a forward-looking economic cost study. The FCC guidelines for universal service cost studies, for example, explicitly prohibit the inclusion of such equipment in a forward-looking economic cost study because loops configured with such equipment do not provide universal access to advanced telecommunications services.[16]

49. Technical Explanation: Load coils are analog loop conditioning devices that impede digital services, but are necessary for long POTS loops. Thus, load coils constitute analog loop conditioning. As a twisted pair of wires extends over distance, an electrical effect called capacitance occurs between the two electrically charged wires. As the distance becomes longer, the capacitance increases. At higher and higher frequencies, high capacitance acts like a short circuit across the wires, thereby attenuating the signal. Once normal analog telephone pairs extend beyond 18,000 feet, prescription engineering design dictates that load coils (technically "inductors" which counteract capacitance) must be used. In addition, the design rules indicate that there can be no bridged tap between load coils, since it is improper to have a subscriber line working in the middle of a string of load coils. Once the 18,000 foot limit is reached, it immediately triggers three load coils per pair at 6,000 foot intervals, beginning at 3,000 feet from the central office[17]. Therefore, properly designed loaded copper loops should have load coils at 3 kft., 9 kft., and at 15 kft.; somewhat longer loops would require another load at 21,000 feet.

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16 FCC Universal Service Order at ¶250(1). In a sense, load coils "condition" loops to provide only analog service.

17 The first load coil is positioned 3,000 feet from the central office so that a local connection between two loaded cable pairs will traverse 3,000 feet into the central office on the calling line, and 3,000 feet out of the central office on the called line, thereby creating a standard 6,000 foot interval for the path in and out of the central office.

Therefore, properly designed loaded copper loops should have load coils at 3 kft., 9 kft., and at 15 kft.; somewhat longer loops would require another load at 21,000 feet.

50. Bell Atlantic has properly proposed that any load coils for loops less than 18,000 feet will be removed at their own expense. That is appropriate, because they should not be there. In addition, Bell Atlantic should be required to remove any and all bridged tap between loads, since there should be none in properly engineered plant of any vintage. The only chance for bridged tap or end section is beyond the very last load.

51. Even assuming load coil removal is an appropriate cost to be recovered, Bell Atlantic has provided no substantiation for the extensive labor hours they claim are necessary for the load coil removal function. It is important for this Commission to be able to test Bell Atlantic's time estimates for reasonableness. The following diagram illustrates how simple it is to trim out load coils.

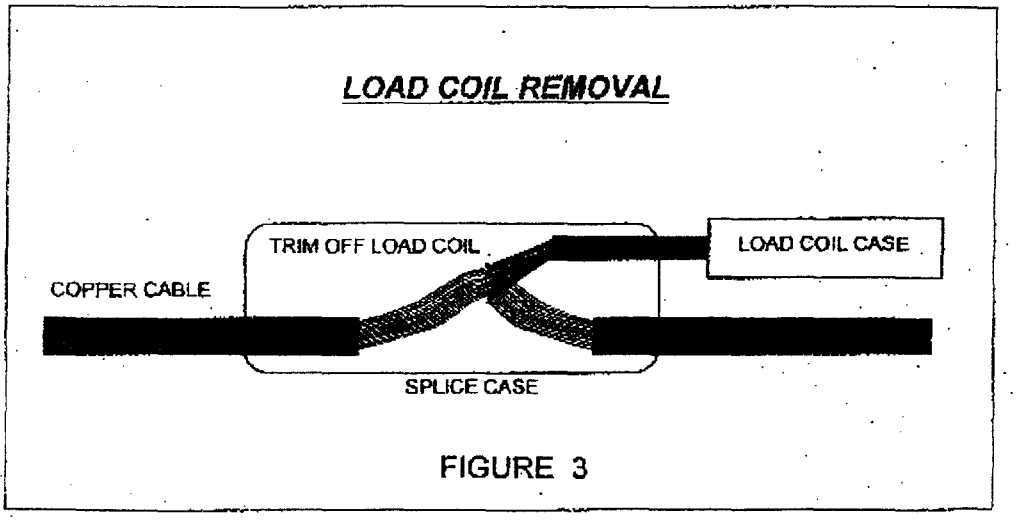

FIGURE 3

It is appropriate to note that the removal of load coils from a circuit is similar to the simple task of bridged tap removal. Once again, the tasks involve determining the

location from accurate continuing property records maintained by the engineering department (made even easier by the fact that loads coils are at known distance intervals) – information already gleaned during the Loop Qualification portion of the service order.

52. Like bridged tap removal, because cutting away load coils is such an easy job for the technician, an Engineering Work Order can be a simple Memo Order. The technician needs to read the engineering order, locate the splice, identify the loaded pairs, remove the connection of the pair to and from the load coil case, and rejoin the connectors as a straight-through connection. For larger cables, as discussed later, pairs are normally deloaded in 25-pair increments. This amounts to unsnapping and re-snapping 25-pair modular splice connectors. Whereas buried splices are normally located in easily accessible pedestals, a bit more work is required to enter and close splice cases in aerial and underground structure conditions.

53. Because unloading cable pairs must occur at a minimum of three locations, it is common practice in the industry to deload more than one pair on such a job. The generally accepted engineering practice in the industry is to deload an entire 25-pair binder group in large cables (normally 400 pairs and larger). For smaller cables, it is common to deload in increments of at least 5 pairs at one time. This has made sense over many years in telecommunications, because if there is a need to deload one pair, there is a high probability that another order will soon follow, and larger cables are much simpler to handle and administer in 25-pair "binder groups".

Allocation of Deloading Costs

54. We believe that BA-NY should be required to remove load coils at its own expense. Should the Commission decide to impose such charges on CLECs, we propose the following:

55. The Commission should conclude that Bell Atlantic's unsubstantiated labor estimates are unreasonable. We agree that work rules call for two technicians in underground manhole situations, with a single technician in aerial and buried conditions. However, BA-NY's unsubstantiated estimate of 4 hours per deloading site is far too high, and no productivity allowance is made for the economies of scale in deloading at multiple sites as part of the same job. Bell Atlantic's cost computations have each load coil site deloaded at the same cost, and where an extra site is required for 27,000 foot loops, BA-NY proposes an addition of the same 4 hour increment. These tasks are not 4 hour tasks. The technician work involved consists of:

(1) Reading the engineering memo.

(2) Identifying the locations to be visited.

(3) Travel between work sites that are only 6,000 feet apart.

(4) Setting up traffic cones / work area protection.

(5) Opening the splice case.

(6) Identifying the (color coded) pairs to be deloaded / trimmed off.

(7) Cutting and clearing (trim off) the loaded tap pairs.

(8) Closing the splice case.

(9) Reporting the work complete at the end of the job.

56. These are work functions that take a few minutes, not hours. Bell Atlantic's estimate of 16 – 20 hours plus engineering and clerical time to deload at 3 sites is far in excess of reasonable work times (and doubled to 32 – 40 hours for underground loops).

57. Since common practice in the industry is to deload multiple pairs at one time, it is most appropriate to divide the deloading cost by the number of pairs deloaded. Our conservative proposal is that underground deloading costs be divided by 25 pairs to obtain a cost per pair, since underground cables are virtually always larger than 300 pairs. In a similar manner, aerial and buried deloading costs should be divided by 5 pairs to obtain a cost per pair, since those are frequently smaller cables.

Bell Atlantic Costs for Providing Circuit Information

58. CLECs want access to Bell Atlantic's LFACS (a mechanized loop facilities records system). There is no need to create a whole new database just for CLECs. Information such as length and gauge details, cable loading details, and a DLC indicator are either already provided in LFACS or should be contained in the LFACS database. Also, the simple go – no go database that Bell Atlantic alleges needs to be built is already there in LFACS. Even better information from LFACS should be made available, and in any case, Bell Atlantic should have been populating that information over the past 12 years or more. Bell Atlantic's frantic efforts to populate loop qualification information is simply an effort to catch up to what should have been done over the past decade or more – an effort that has already been funded over the years by New York ratepayers under the assumption that it would be done.

59. Whereas BA-NY seeks to impose undue costs for loop information, most of that information has been, or should have been, entered into the LFACS system over the past dozen years. We were both actively involved at NYNEX when directives were issued in the mid-1980's concerning loop makeup data. Those directives stated that once a "length and gauge" loop makeup had been done via what BA-NY now calls an "Engineering Query", all pairs in that serving terminal should be annotated in the FACS system (now LFACS). It now appears that BA-NY has either failed to follow their own directive for over a decade, that the information entered was of poor quality or not maintained, or that it is there but BA-NY intends to do it all again, and create a brand new database.

60. CLECs should be given direct access, on a read-only basis, to LFACS. This is not a difficult endeavor. This access is currently provided to thousands of Bell Atlantic technicians via their handheld Craft Access Terminals ("CAT"s). This electronic qualification method should be the first choice of databases, and allowing read-only access to registered CLECs can be secured under contract, should BA-NY be willing to do so, or be ordered to do so. Just as BA-NY technicians have built in network security sign-on procedures, so could CLECS be granted the same restrictive procedures. If banks can have on-line services that allow the paying of bills wherein a check is issued against a customer's account, BA-NY can certainly provide read-only access to LFACS with adequate security precautions.

61. The maintenance of the LFACS database, or another database that Bell Atlantic may choose to create, should not be imposed on CLECs. The cost of all database maintenance has already been imposed on CLECs as part of all recurring

charges. Bell Atlantic's proposal to have CLECs fund the creation and maintenance of their new database is unfair and improper, especially since nothing beyond what should be available in LFACS would be provided to CLECs. Bell Atlantic's proposal is doubly flawed in its calculation of maintenance charges for that allegedly new database, in that it imposes maintenance charges for Year-1 loops on loops that are being researched in year 1, rather than reflecting a delay offset in maintenance charges of one year or more. In any case, such maintenance is already a recurring charge.

62. When mechanized information is deemed to not be available, BA-NY seeks to impose unreasonable costs. We believe it is appropriate to inform this Commission of methods currently being employed by BA-NY for its own use. We reserve the right to amend this affidavit as a result of BA-NY's responses to Interrogatories that have been submitted by Rhythms, and any other parties to these proceedings.

Comments on Bell Atlantic's Draft Technical Recommendation TR 72575

63. The notion that Bell Atlantic imposed designed/performance restrictions on emerging technology through the promulgation of the *Draft Technical Recommendation TR 72575* is patently unfair and violates the March 31, 1999 Advanced Wireline Services Order (para. 152). This breach of competitive access would permit inordinate control of bottleneck facilities and technological innovation to lie in the hands of Bell Atlantic with no effective oversight.

64. Bell Atlantic, for example, could unilaterally change specifications in the draft document at any time, thereby sending competitive forces into chaos and retreat. Moreover, it poses the non-trivial prospect of denying customers advances in technology

until such time as Bell Atlantic positions itself to provide similar, or better, services. The specifications outlined in the draft document need to stand the test of scrutiny from the appropriate regulatory oversight agencies, as well as the national/international community of service providers. There are sufficient numbers of questions raised by the draft document that must be explored prior to the promulgation of any such specifications.

Summary and Conclusions

65. Bell Atlantic's non-recurring charges for loop conditioning are not justified nor reasonable because they contradict forward-looking, most efficient network design. Further, these proposed charges, if permitted, would allow the subsidization of outside plant that has existed long beyond its normal service life and that was not designed according to evolving prescription engineering design guidelines. For at least these reasons, Bell Atlantic's proposed rates should be rejected.

66. Despite this position, our analysis of the limited cost justification that Bell Atlantic has filed reveals that Bell Atlantic's proposed rates are not reasonable. Any further investigation of these proposed rates should assure that the parties and the Commission have adequate information to form the basis of those proposed rates.

67. In addition, BA's tariff unnecessarily complicates CLECs' simple need for access to DSL-capable unbundled loops. The majority of Bell Atlantic's loops are immediately capable of supporting both analog and digital services without the need for conditioning.

68. Bell Atlantic's tariff improperly seeks to limit and control the service offerings that CLECs like Covad and Rhythms desire to provide to residential and

business customers in New York. Bell Atlantic's arbitrary and discriminatory definitions of and standards for DSL services should be rejected.

69. CLECs should be allowed access to existing databases such as LFACS and TIRKS, on a read-only basis, to be able to determine outside plant characteristics prior to ordering a loop.

FURTHER AFFIANTS SAYETH NAUGHT.

JOHN C. DONOVAN

Subscribed and sworn to before me
this 23 day of September, 1999.

Notary Public, State of New York

My commission expires: NOV 21 2000

BETTY THOMAS
Notary Public, State of New York
No. 4944530
Qualified in Nassau County
Commission Expires Nov. 21, 2000

JOSEPH P. RIOLO

Subscribed and sworn to before me
this 23 day of September, 1999.

Notary Public, State of New York

My commission expires: NOV. 21 2000

BETTY THOMAS
Notary Public, State of New York
No. 4944530
Qualified in Nassau County
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